JORDAN S. ELLENBERG

Contact Information:
Department of Mathematics
University of Wisconsin
Van Vleck Hall
Madison, WI 53706-1388
(608)-263-2604
ellenber@math.wisc.edu
http://www.math.wisc.edu/~ellenber

Employment

John D. MacArthur Professor, University of Wisconsin (2015-)

A.D. White Professor-at-Large, Cornell University (2019-2025)

Vilas Distinguished Achievement Professor, University of Wisconsin (2014-)

Professor, University of Wisconsin (2011-)

Associate Professor, University of Wisconsin (2007-11)

Assistant Professor, University of Wisconsin (2005-07)

Assistant Professor, Princeton University (2001-2005)

Instructor, Princeton University (1998-2001)

MSRI Postdoctoral Fellow (Fall 1999)

Education

Harvard University, Cambridge, MA.
Ph.D. in Mathematics, June, 1998. Dissertation under the supervision of Prof. Barry Mazur: *Hilbert modular forms and the Galois representations associated to Hilbert-Blumenthal abelian varieties.*
Harvard University, Cambridge, MA.
A.B. summa cum laude in Mathematics, June, 1993.

Research Interests

Arithmetic algebraic geometry, number theory.

Research Publications

"Smyth's conjecture and a non-deterministic Hasse principle," with W. Hardt, in preparation

"PatternBoost: Constructions in mathematics with a little help from AI," with F. Charton, G. Williamson, and A. Z. Wagner, submitted, arXiv: 2411.00566

"Mathematical discoveries from program search with large language models," with B. Romera-Paredes, et al, *Nature* (2023)

"Homological stability for generalized Hurwitz spaces and Selmer groups in quadratic twist families over function fields," with A. Landesman, submitted, arXiv: 2310.16286.

"Certifying nontriviality of Ceresa classes of curves," with A. Logan and P. Srinivasan, submitted

"Fox-Neuwirth-Fuks cells, quantum shuffle algebras, and Malle's conjecture for function fields," with T. Tran and C. Westerland, submitted, arXiv: 1701.04541, fully revised version posted March 2023

"The Ceresa class: tropical, topological, and algebraic," with D. Corey and W. Li, *Jour Math Inst Jussieu* 23 (5), 2175-2215 (2024)

"Heights on stacks and a generalized Batyrev-Manin-Malle conjecture," with M. Satriano and D. Zureick-Brown, , arXIv:2106.11340, *Forum Math. Sigma* vol 11 (2023)

"Sparsity of integral points on moduli spaces of varieties," with B. Lawrence and A. Venkatesh, *Internat. Math. Research. Not.* 2023.17 (2023)

"Intracounty modeling of COVID-19 infection with human mobility: Assessing spatial heterogeneity with business traffic, age, and race," with X. Hou, S. Gao, Q. Li, Y. Kang, N. Chen, K. Chen, J.Rao, *Proceedings of the National Academy of Sciences* vol. 118 issue 24 (2021)

"Rational points on solvable curves over $\mathbf{Q}$ via non-abelian Chabauty," with D. Hast, *Internat. Math. Res. Not.*, rnab141 (2021)

"Nonvanishing of hyperelliptic zeta functions over finite fields," with W. Li and M. Shusterman, *Algebra and Number Theory* 14(7), 1895–1909 (2020)

"Convergence rates for ordinal embedding ," with L. Jain, submitted, arXiv: 1904.12994

"Detection of planted solutions for flat satisfiability problems," with Q. Berthet, proceedings of the 22nd AISTATS, 1303–1312 (2019)

"Sumsets as unions of sumsets of subsets," *Discrete Analysis* 2017:14, (2017)

"On large subsets of $\mathbf{F}_q^n$ with no three-term arithmetic progression," with D. Gijswijt, *Ann, of Math.*, 185 (1), pp.339–343 (2017)

"Averages of ℓ-torsion in class groups of number fields," with L. Pierce and M. M. Wood, *Algebra and Number Theory* vol 11 no 8, pp.1739–1778 (2017)

"Approximate gradient coding via sparse random graphs," with Z. Charles and D. Papailiopoulos, arXiv:1711.06771

"Algebraic structures on cohomology of configuration spaces of manifolds with flows," with J. Wiltshire-Gordon, submitted, arXiv:1508.02430.

"Homology of FI-modules," with T. Church, *Geometry & Topology* 21-4 (2017), 2373–2418. DOI 10.2140/gt.2017.21.2373

"Furstenberg sets and Furstenberg schemes over finite fields," with D. Erman, *Algebra and Number Theory* vol 10, no. 7, 1415–1436 (2016)

"An incidence conjecture of Bourgain over fields of positive characteristic," with M. Hablicsek, *Forum of Mathematics, Sigma*, 4, doi: 10.1017/fms.2016.19. (2016)

"Homological stability for Hurwitz spaces and the Cohen-Lenstra conjecture over function fields," with A. Venkatesh and C. Westerland, *Ann. of Math.* 183:3, 729-786 (2016)

"FI-modules: a new approach to stability for S_n-representations," with T. Church and B. Farb, *Duke Math. J.* 164 (9), 1833-1910 (2015)

"FI-modules over Noetherian rings," with T. Church, B. Farb, and R. Nagpal, arXiv:1210.1854, *Geometry and Topology* 18-5, 2951-2984 (2014)

"Representation stability in cohomology and asymptotics for families of varieties over finite fields," with T. Church and B. Farb, *Contemporary Mathematics* 620 (2014), 1-54

"Superstrong approximation for monodromy groups," arXiv:1210.3757, in *Thin Groups and Superstrong Approximation,* MSRI Publication Series 61 (2014)

"Homological stability for Hurwitz spaces and the Cohen-Lenstra conjecture over function fields, II," with A. Venkatesh and C. Westerland, (2012) arXiv:1212.0923, submitted.**Warning:** this paper has been withdrawn for repairs.

"Linnik's ergodic method and the distribution of integer points on spheres," with P. Michel and A. Venkatesh, in *Automorphic Representations and L-functions*, vol 22 of *Tata. Inst. Fundam. Res. Stud. Math.*, pp.119-185 (2013)

"Random Dieudonne modules, random p-divisible groups, and random curves over finite fields," with B. Cais and D. Zureick-Brown, arXiv 1201.0822, *J. Math. Inst. Jussieu* pp.1-26 (2012)

"Expander graphs, gonality, and variation of Galois representations," with C. Hall and E. Kowalski, arXiv 10098.3675, *Duke Math J.* 161 (7), pp. 1233–1275 (2012)

"Arithmetic Veech sublattices of $\mathbf{SL}(2,\mathbf{Z})$," with D.B.McReynolds, *Duke Math J.* 161 (3), pp. 415–429 (2012)

"Modeling lambda invariants by p-adic random matrices," with S. Jain and A. Venkatesh, *Comm Pure Appl. Math.*, vol 64, no. 9 (2011)

"Statistics of number fields and function fields," with A. Venkatesh, in *Proceedings of the ICM, Hyderabad 2010*

"Random pro-p groups, braid groups, and random tame Galois groups," with N. Boston, *Groups, Geometry, and Dynamics* 5 (2), pp.265–280 (2011)

"Positive motivic measures are counting measures," with M. Larsen, *Algebra and Number Theory*, 4(1) (2010)

"The Kakeya set and maximal conjectures for algebraic varieties over finite fields," with R. Oberlin and T. Tao, *Mathematika* Volume 56, Issue 01, January 2010, pp 1-25.

"The Diophantine equation $A^4 + 2^d B^2 = C^n$" (with M.A. Bennett and N.C. Ng,) *Int. J. Number Theory* 6(2) (2010).

"A sharp diameter bound for unipotent groups of classical type over $\mathbf{Z}/p\mathbf{Z}$" (with J.Tymoczko,) *Forum Math.* vol 22 no. 2, 327–347 (2010)

"Non-simple abelian varieties in a family: geometric and analytic approaches," (with C. Elsholtz, C. Hall, and E. Kowalski,) *J. Lond. Math. Soc.* (2) 80, no.1, 135–154 (2009)

"Points of low height on $\mathbf{P}^1$ over number fields and bounds for torsion in class groups," in *Computational Arithmetic Geometry,* K. Lauter and K. Ribet, eds., AMS Contemp. Math. 463 (2008)

"Local-global principles for representations of quadratic forms," (with A. Venkatesh,) *Invent. Math.* 171, no. 2, 257–279 (2008)

"Reflection principles and bounds for class group torsion," (with A. Venkatesh,) *Int. Math. Res. Not.* no.1, Art. ID rnm002 (2007)

"Asymptotics of coinvariants of Iwasawa modules under non-normal subgroups," (with A. Logan,) *Math. Res. Lett.* 14, no.5, 769–773 (2007)

Appendix to "Counting maximal arithmetic subgroups," by M. Belolipetsky, (with A. Venkatesh,) *Duke Math. J.* 140, no. 1, 1-33 (2007)

"Selmer groups and Mordell-Weil groups of elliptic curves over towers of function fields," *Compos. Math.* 142, no. 5, 1215–1230 (2006)

"The number of extensions of a number field with fixed degree and bounded discriminant," (with A. Venkatesh,) *Ann. of Math.* 163 (2), 723–741 (2006)

"Pro-p groups and towers of rational homology spheres," (with N. Boston) *Geometry and Topology* 10, 331-334 (2006)

"Serre's conjecture over $\mathbf{F}_9$," *Ann. of Math.* 161 (3), 1111-1142 (2005)

"Uniform bounds for rational points on non-rational curves," (with A. Venkatesh,) *Int. Math. Res. Not.* 35, 2163–2181 (2005)

"Counting extensions of function fields with bounded discriminant and specified Galois group," (with A. Venkatesh,) in *Geometric Methods in Algebra and Number Theory*, F. Bogomolov and Y. Tschinkel, eds. (2005)

"On the error term in Duke's estimate for the average special value of L-functions," *Canad. Math. Bull.* 48, no.4, 535-546 (2005)

"Galois representations attached to $\mathbf{Q}$-curves and the generalized Fermat equation $A^4+B^2 = C^p$," *Amer. J. Math* 126(4), 763–787 (2004)

"K3 surfaces over number fields with geometric Picard number one," in *Arithmetic of Higher Dimensional Algebraic Varieties*, B. Poonen and Y. Tschinkel, eds. (2004)

"$\mathbf{Q}$-curves and Galois representations," in *Modular Curves and Abelian Varieties*, J. Cremona, J.-C. Lario, J. Quer, K. Ribet, eds. (2004)

"On the average number of octahedral modular forms," *Math. Res. Lett* 10, 269–273 (2003)

"Galois invariants of dessins d'enfants," in *Arithmetic Fundamental Groups and Noncommutative Algebra*, M. Fried and Y.Ihara, eds. (2002)

"Endomorphism algebras of Jacobians", *Adv. Math.* 162, 243–271 (2001)

"On the modularity of $\mathbf{Q}$-curves" (w. C. Skinner), *Duke Math. J.* 109, no. 1, 97–122 (2001)

"Finiteness of torsion subschemes of Hilbert-Blumenthal abelian varieties," *J. Reine Angew. Math.* 532, 1–32 (2001)

"Congruence ABC implies ABC," *Indag. Math.*, N.S., 11 (2), 197–200 (2000)

"The combinatorics of rewritability in finite groups," *Group theory (Granville, OH, 1992)*, 250–261, World Sci. Publishing, River Edge, NJ, 1993 (with G. Sherman, L. Smithline, C. Sugar, E. Wepsic)

Expository Publications

Shape (Penguin Press, 2021)
A general-interest book about the broad reach of geometry, from machine learning to politics to pandemics. *The New York Times* bestseller list, June 2021.

"Geometry, inference, complexity, and democracy,"
Bulletin of the American Math Society 58.1 (2021): 57-77.

How Not To Be Wrong
(Penguin Press, 2014) A general-interest book about the mathematics of everyday life. *New York Times* bestseller list, June - August 2014.

General-interest articles on mathematical topics for various publications, including *The New York Times*, the *Washington Post*, *Slate*, *The New York Times Book Review*, *The Wall Street Journal*, *Wired*, *The Atlantic*, *Scientific American*, and the *Believer*.

I blog on mathematical (and other) topics at Quomodocumque.

"Arithmetic algebraic geometry," and "Elliptic curves," articles for lay readers, in *The Princeton Companion to Mathematics*, T. Gowers, ed.

"The idea of a moduli space," article for high school students, published in *Imagine*, May/June 1998, reprinted in *Math Horizons*, November 1998.

Awards, Prizes, Grants

NSF Grant DMS-2301386
Held 2023-
Eric and Wendy Schmidt Award for Excellence in Science Communication, presented by National Academies
Awarded 2023
AMS Joint Policy Board for Mathematics Communications Award
Awarded 2023
NSF Grant DMS-2001200
Held 2020-2023
Simons Fellowship in Mathematics
Awarded 2018
William R. Kellett Award
Awarded 2017. Five-year mid-career fellowship, awarded to eleven faculty members across UW-Madison
NSF Grant DMS-1700885, "Asymptotics for Rational Points"
Held 2017-2020
MAA Euler Book Prize
2016. "Awarded annually to an author or authors of an outstanding book about mathematics."
Guggenheim Fellowship
Awarded 2016
NSF Grant DMS-1402620, "Stability Phenomena in Number Theory, Algebraic Geometry, and Topology."
Held 2014-2017
MAA Trevor Evans Award
2014. For best expository article published in *Math Horizons*.
Fellow of the American Mathematical Society
Inaugural class of Fellows, 2012.
AFOSR Grant, "Mathematical foundations of secure computing clouds,"
2013-, one of 7 PIs
Discovery Fellow, Wisconsin Institute for Discovery
2012-
NSF Grant DMS-1101267, "Geometric Analytic Number Theory."
Held 2011-2014
H.I. Romnes Faculty Fellowship, 2010
Five-year early career fellowship, awarded to six faculty members across UW-Madison
NSF Research Training Grant, "Algebraic Geometry and Number Theory at the University of Wisconsin,"
$1.6m, held 2009-14, co-PI 2009-11, PI 2011-14.

NSF-CAREER Grant DMS-0448750, "Rational points on varieties and non-abelian Galois groups"
Held 2005-2011
Alfred P. Sloan Research Fellowship
Awarded 2005
NSF Grant DMS-0401616
Held 2004-2005
NSA Young Investigator Grant
Held 2001-2004
National Science Foundation Graduate Fellow (1994–1997)
Department of Mathematics, Harvard University.

Professional Service

Board on Mathematical Sciences and Analytics, National Academy of Sciences, 2025-
AMS Elias M. Stein Prize Committee, 2024-2025
Organizer, "The Ceresa Cycle in Arithmetic and Geometry" Workshop, ICERM, 2024
Organizer, National Academy of Sciences AI to Assist Mathematical Reasoning, 2023
Organizer, IPAM workshop on Machine-Assisted Proof, 2023
Organizer, Workshop on Arithmetic and Topology over Global Fields, Madison, 2022
AMS Doob Prize Committee, 2022-2028
Member at Large, AMS Committee on Science Policy, 2022-2023
Organizer, Simons Symposium on Geometry of Arithmetic Statistics, 2022
Organizer, Madison Moduli Weekend, 2020
Scientific Committee, Journees Arithmetiques 2019
Prize Committee for the IMU Chern Medal, 2018
Organizer, Geometry of Redistricting workshop, Madison, Oct 2017
Organizer, ICMS workshop on braids, Edinburgh, May 2017
Organizer, Hebrew U. workshop on the polynomial method, Jerusalem, December 2016
IPAM Science Board, 2016-
AMS Program Committee for National Meetings, 2016-2019
AMS Web Editorial Group, 2015-
Organizer, workshop on counting arithmetic objects (ranks of elliptic curves), CRM Montreal, November 2014
Editorial Board, *Algebraic Geometry* (2013-2021)
Organizer, theme semester on algebraic techniques for combinatorial and computational geometry, IPAM, Spring 2014
Organizer, workshop on arithmetic statistics in function fields, AIM, January 2014
Organizer, special session on number theory and geometry, AMS-MAA Joint Meetings, January 2013
Organizer, "hot topics" session on thin subgroups of arithmetic groups, MSRI, February 2012
AMS Centennial Fellowship Committee, 2011-12
Editorial Board, AMS University Lecture Series, 2011-2019
Organizer, special session on arithmetic and group theory, AMS Central Section meeting, November 2010
Organizer, workshop on pseudo-Anosovs with low dilatation, April 2010
Organizer, "Math And..." interdisciplinary seminar series, U. of Wisconsin
Editorial Board, *Journal de Théorie des Nombres de Bordeaux* (2006-2014)
Organizer, Miniconference on pro-p groups and pro-p algebras in number theory, April 2007
Organizer, Midwest Algebraic Number Theory Day, October 2005 and November 2009
Organizer, Graduate Student Conference In Number Theory, October 2005, November 2007, November 2009
Organizer, AIM workshop on the Birch-Swinnerton-Dyer Conjecture, Fall 2003

Invited Lectures

Distinguished Lecture Series, U. Hawaii, March 2025

Virginia Mathematics Lectures, University of Virginia, March 2025

Dean's Distinguished Lecture, University of Wisconsin-Milwaukee, October 2024

Plenary Lecture, Young Mathematicians' Conference, Ohio State, August 2024

Public Lecture, "Theoretically Speaking" Series, Simons Institute for the Theory of Computing, July 2024

Plenary lecture, Algorithmic Number Theory Symposium XVI, MIT, July 2024
Public Lecture, Mathematics Institute Oxford, June 2024
Ng Kong Beng Public Lecture, National University of Singapore, June 2024
Albert Whiteman Memorial Lectures, University of Southern California, March 2024
Loeb Lecture, Washington University at St. Louis, January 2024
Kieval Lecture, Cornell University, March 2023
JPBM Prize Lecture, Joint Mathematics Meetings, Boston, January 2023
The Christmas Lecture, University of Notre Dame, December 2022
Dan E. Christie Lecture, Bowdoin College, April 2022
Distinguished Speaker Series, Franke Program in Science and the Humanities, Yale, October 2021
Distinguished Colloquium Series, Turkish Mathematical Society, September 2021
Plenary speaker, Brazilian Mathematical Colloquium, IMPA, August 2021
Lecture series (with David Zureick-Brown), Berkeley RTG research workshop, June 2021
Tutte Distinguished Lecture, U. Waterloo, November 2020
Current Events Bulletin lecture, Joint Mathematics Meetings, January 2020
Alexanderson Lecture, American Institute of Mathematics, October 2019
Heilbronn Distinguished Lecture Series, University of Bristol, May 2019
Princeton Program in Applied and Computational Math Distinguished Lecture, April 2019
Kirwan Distinguished Undergraduate Lecture, University of Maryland, April 2018
Bartlett Lecture, University of Arizona, April 2017
Keynote Address, NCTM national meeting, San Antonio, April 2017
Sulski Memorial Lecture, College of the Holy Cross, April 2017
Edmund Michalik Lecture, University of Pittsburgh, February 2017
Stanford Math Research Center Public Lecture, November 2016
Miller Institute Interdisciplinary Symposium, UC-Berkeley, June 2016
Howard Rowlee Lecture, University of Nebraska, March 2016
NSF Distinguished Lecture, National Science Foundation, May 2015
Dresden Lectures, Swarthmore College, April 2015
Distinguished Lecture Series, Boston College, February 2015
AMS-MAA Invited Address, Joint Mathematics Meetings, January 2015
Invited Lecture, "Education as Self-Fashioning" Lecture Series, Stanford University, October 2014
MAA Distinguished Lecture, Washington DC, June 2014
Marden Lecture, University of Wisconsin - Milwaukee, March 2014
Presentation of the work of Yakov Sinai, Abel Prize Announcement Ceremony, March 2014
Lecture series, Arizona Winter School in Arithmetic Geometry, March 2014
AMS Invited Address, Joint Mathematics Meetings, January 2013
Norbert Wiener Lectures, Tufts University, March 2012
Gergen Lectures, Duke University, February 2012
Serge Lang Memorial Lecture, UC-Berkeley, December 2011
Invited Address, AMS Central Section Meeting, Notre Dame, November 2010

Seminars and conference talks

Brown Algebraic Geometry Seminar, October 2024
Number Theory Web Seminar, September 2024
Summer seminar, Stanford University, July 2024
Gowers 60th birthday conference, April 2024
Harvard number theory seminar, February 2024
MIT number theory seminar, February 2024
BU number theory seminar, February 2024
Wash. U. colloquium, January 2024
Special session talk, Joint Math Meetings, January 2024
IAS number theory seminar, November 2023
U. Barcelona number theory seminar, July 2023
Introductory Workshop, MSRI semester on Diophantine Geometry, February 2023
Stanford Number Theory Seminar, January 2023
Algebraic Geometry seminar, Tsinghua U. (virtual), January 2023
Two special session talks, Joint Math Meetings, January 2023
Number theory seminar, Hebrew U., December 2022
UCLA Number Theory Seminar, November 2022
Simons Symposium on Geometry of Arithmetic Statistics, August 2022
Communicating Mathematics workshop, Cornell, August 2022
Research program seminar, Park City Math Institute, July 2022
Science communication seminar, Simons Institute for the Theory of Computing, July 2022
ADDING (Anabelian Days Down In Georgia) conference, April 2022
Emory Algebra Seminar, April 2022
Western Algebraic Geometry Seminar, April 2022
U. Penn algebra seminar, March 2022
No Boundaries seminar, U, Chicago, February 2022
MATRIX (online) seminar, U. Melbourne, December 2021
Number theory seminar, University of Gothenburg, December 2021
BIRS workshop on cohomology of arithmetic groups, October 2021
Yale Colloquium, September 2021
UI-Chicago algebraic geometry seminar, April 2021
VANTAGE number theory seminar, April 2021
MSU/Michigan Colloquium, February 2021
Stanford Colloquium, January 2021
Ohio State Algebraic Geometry seminar, October 2020
UC Berkeley Colloquium, October 2020
Number Theory Web Seminar (hosted UBC), July 2020
IAS Math Conversations, April 2020
U. Chicago Number Theory Seminar, February 2020
Harvard Number Theory Seminar, February 2020
Stanford Algebraic Geometry Seminar, October 2019
Rational points on irrational varieties conference, Inst. Henri Poincare, Jun 2019
Summer school in arithmetic topology, PIMS-Vancouver, Jun 2019

Arithmetic statistics of class groups and Selmer groups, MPI-Bonn, Jun 2019
Representation stability workshop, U. Chicago, April 2019
U. Pennsylvania Colloquium, April 2019
University of Washington Colloquium, November 2018
University of Idaho Algebra Seminar, November 2018
Michigan Number Theory Seminar, October 2018
Colloquium, Williams College, September 2018
Rational points on Schiermonnikoog, Netherlands, July 2018
RTG conference on "Roots of Topology," U. Chicago, June 2018
80th birthday conference for Barry Mazur, June 2018
Birational geometry and arithmetic, ICERM, May 2018
Stanford Number Theory Seminar, May 2018
NYU Algebraic Geometry Seminar, April 2018
Emory Algebra Colloquium, February 2018
Workshop on algebraic methods in combinatorics, Harvard, November 2017
Birthday conference for Benson Farb, U. Chicago, October 2017
Diophantine problems seminar, U. Paris VI (Jussieu), July 2017
Canadian Discrete Mathematics Conference (CANADAM), Toronto, June 2017
U. Arizona Algebra and Number Theory Seminar, April 2017
Harvard-MIT-Northeastern Colloquium, April 2017
Lectures on Arithmetic Geometry RTG workshop, Rice U., February 2017
Workshop on Analytic Number Theory, MSRI, February 2017
IAS Discrete Math Seminar, January 2017
Hebrew University Colloquium, December 2016
Tel Aviv Number Theory Seminar, December 2016
Stanford Combinatorics Seminar, November 2016
Santa Fe Institute Colloquium, October 2016
Temple Grad Student Conference on Algebra, Geometry, and Topology, May 2016
BIRS conference on asymptotic methods in algebra, April 2016
U. Michigan Colloquium, February 2016
UC Berkeley Colloquium, February 2016
IPAM workshop on combinatorial and computational geometry, December 2015
U. Chicago Geometry/Topology Seminar, December 2015
AGNES (Algebraic Geometry Northeastern Series), October 2015
Public lecture, ICERM, October 2015
Columbia Algebraic Geometry Seminar, September 2015
International Conference in Number Theory and Physics, IMPA, June 2015
U. Penn Number Theory Seminar, April 2015
Georgia Tech Number Theory Seminar, March 2015
U. Chicago Colloquium, February 2015
U. Chicago Geometry/Topology Seminar, February 2015
Princeton/IAS Number Theory Seminar, December 2014
Public Lecture, Institute for Mathematics and its Applications, September 2014

Counting Arithmetic Objects, Montreal, July 2014 (two lectures)

Northwestern University Colloquium, April 2014

IPAM conference on algebraic methods in discrete geometry, April 2014

UW-Milwaukee Colloquium, March 2014

Boston University Colloquium, March 2014

Hebrew University of Jerusalem Colloquium, January 2014

Hebrew University of Jerusalem Number Theory Seminar, December 2013

University of Texas Number Theory Seminar, November 2013

Workshop in Homological Stability, U. Copenhagen, August 2013

Athens-Atlanta Number Theory Seminar, April 2013

Temple U Colloquium, April 2013

Von Neumann Public Lecture, Wisconsin Institute for Discovery, January 2013

Conference on Abelian Varieties in Families, EPFL Lausanne, November 2012

Stanford Algebraic Geometry Seminar, October 2012

U. Illinois Urbana-Champaign Colloquium, October 2012

U. Penn Algebra seminar, April 2012

Mini-course at MSRI Workshop on Thin Groups, February 2012

U. Chicago geometry/topology seminar, December 2011

U. Chicago number theory seminar, December 2011

UC-Berkeley number theory seminar, November 2011

AIM workshop on the Cohen-Lenstra conjectures, June 2011

Invited talk, FRG conference on Moduli Spaces and Moduli Stacks, May 2011

Ohio State algebraic geometry seminar, April 2011

Columbia-CUNY-NYU number theory seminar, February 2011

Brown number theory seminar, February 2011

BC-MIT number theory seminar, February 2011

MSRI Arithmetic Statistics Intro Workshop, February 2011

Invited Lecture, "Development of Galois-Teichmuller Theory and Anabelian Geometry," Kyoto, October 2010

Invited Lecture, "Rational Points: Theory and Experiment," ETH, Zurich, May 2010

Plenary Speaker, Workshop on Zeta Functions in Algebra and Geometry, Mallorca, May 2010

Yale Colloquium, March 2010

U. Chicago Geometric Topology Seminar, March 2010

Ph.D. advising

Di Chen (Ph.D. 2024), working in China
Hyun Jong Kim (Ph.D. 2024) postdoctoral fellow, Western University
Sun Woo Park (Ph.D. 2024) postdoctoral fellow, Max Planck Institute, Bonn
John Yin (Ph.D. 2024) postdoctoral fellow, Ohio State University
Will Hardt (Ph.D. 2023) Federal Reserve of Minneapolis
Yu Fu (Ph.D. 2023), postdoctoral fellow, Caltech
Asvin G (Ph.D. 2023) postdoctoral fellow, University of Toronto
Niudun Wang (Ph.D. 2021) Google
Elle Najt (Ph.D. 2021) Two Sigma Investments
Soumya Sankar (Ph.D. 2020) Postdoctoral fellow, U. Utrecht
Brandon Boggess (Ph.D. 2020) software engineer, Epic
Wanlin Li (Ph.D. 2019) Assistant Professor, Washington U.
Daniel Hast (Ph.D. 2018) Postdoctoral fellow, Simons Collaboration Boston U.
Eric Ramos (Ph.D. 2017) Assistant Professor, Stevens Institute of Technology

Vlad Matei (Ph.D. 2017) Assistant Professor, Mathematical Institute of the Romanian Academy
Daniel Ross (Ph.D. 2016) Cybersecurity, Alexandria, VA
Lalit Jain (Ph.D. 2016) Assistant Professor, University of Washington (business school)
Rohit Nagpal (Ph.D. 2015) Postdoc, University of Michigan and IAS; now independent researcher
Silas Johnson (Ph.D. 2015) Long-term lecturer, Washington U. of St. Louis
Evan Dummit (Ph.D. 2014) Associate Teaching Professor of Mathematics, Northeastern U.
Yongqiang Zhao (Ph.D. 2013) Associate Professor, Westlake University, Hangzhou
Derek Garton (Ph.D. 2012) Associate Professor, Portland State University
Guillermo Mantilla-Soler (Ph.D. 2010) Associate Professor, Universidad Nacional de Colombia
Ekin Ozman (Ph.D. 2010) Professor, University of Groningen
Seyfi Türkelli (Ph.D. 2009) Associate Professor, Western Illinois University.
Patrick Rault (Ph.D. 2008) Professor, Idaho State University

Current Ph.D. students:
Karan Srivastava, Ivan Aidun, Ari Davidovsky

Postdoctoral supervision

I have supervised or co-supervised (with permanent academic position where established): Bryden Cais (U. Arizona), David Zureick-Brown (Amherst College), Rob Harron, John Wiltshire-Gordon, Daniel Corey (University of Nevada-Las Vegas), Mark Shusterman (Weizmann Institute), Boya Wen (U. Richmond), Craig Westerland (U. Minnesota)